

Naval Sea Systems Command

NAVAL SURFACE WARFARE CENTER

Electromagnetic Environmental Effects

E3



DAHLGREN DIVISION



Program and Purpose

The Naval Surface Warfare Center, Dahlgren Division (NSWCDD), is the Surface Navy's lead laboratory for electromagnetic environmental effects (E³) research, development, test and evaluation (RDT&E).

An interdisciplinary team of scientists and engineers, using a systems engineering approach, is engaged in analysis and testing to ensure that Navy and Joint Forces are able to complete their mission in a wartime electromagnetic environment (EME). The goal is to predict and eliminate E³ problems before the warfighter is impacted and, when this is not possible, to develop and implement E³ control measures to resolve incompatibilities, thereby ensuring mission success.

The New Challenge

Naval operations have been expanded from open-ocean "blue water" combat environments to include the littoral regions in which a vast number of high-power, multifrequency, shipboard topside emitters and receivers, including Joint Service systems, must operate in proximity to one another and to personnel, weapons, ammunition, and shore systems.

Mission

NSWCDD provides full-spectrum expertise and leadership to ensure the operational effectiveness of Navy and Joint systems exposed to the operational EME. To accomplish this, NSWCDD conducts a multifaceted program to achieve electromagnetic compatibility (EMC). NSWCDD develops and sustains the necessary core equities (people, corporate knowledge, and facilities) to support the mission.

The Division:

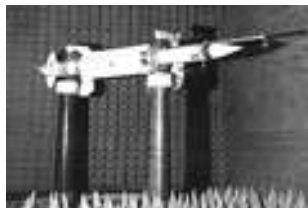
- Participates in system acquisition programs using an E³ systems engineering process to minimize mission-degrading E³ problems.
- Develops analytical and experimental tools, including computational electromagnetics, to predict and assess system and topside electromagnetic performance.
- Conducts research and development of new materials and techniques which, when applied to new and existing systems or infrastructure, result in improved EMC.
- Identifies, develops, evaluates, and recommends solutions to battle group interoperability E³ problems.
- Develops and maintains automated and nonautomated processes to manage battleforce frequency assignments.
- Maintains databases of the E³ characteristics for shipboard systems and information about all previously reported electromagnetic interference (EMI) problems.
- Supports the Joint Ordnance E³ Program to ensure consistent processes across the services.
- Plans, initiates, and conducts RDT&E to determine and prevent Hazards of Electromagnetic Radiation to Ordnance (HERO), Personnel (HERP), and Fuels (HERF).
- Certifies the HERO safety status of all naval ordnance.
- Certifies new and recently overhauled ships to be free from EMI, HERO, HERP, and HERF deficiencies.
- Plans and conducts testing and evaluation to determine the electromagnetic vulnerability (EMV) of missiles, guns, aircraft, and associated equipment, including infrastructure electronic systems.
- Teams with industry counterparts to focus resources on solving complex E³ problems.

Facilities



Naval Ordnance Transient Electromagnetic Simulator (NOTES)

Simulates the electromagnetic pulse associated with special weapons to evaluate system susceptibility.



Anechoic Chamber

Provides a controlled, reflection-free environment for conducting high power EMV/EMI tests on a broad range of systems.



Mode-Stirred Chamber

Provides specialized reverberation conditions for system susceptibility and shielding effectiveness testing.



Ground Planes

Provide a simulated ship deck environment for conducting high power EMV and HERO testing. Transmitters provide the full range of power and frequency to simulate the mission EME, which also can be generated at customer facilities. Instrumentation provides state-of-the-art telemetry data collection and reduction.

The full range of services outlined above is available through the Dahlgren site, which is located on the Virginia shore of the Potomac River, approximately 55 miles south of Washington, D.C. EME services can be provided at customer facilities.

NAVAL SEA SYSTEMS COMMAND



Panama City Dahlgren

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For additional information, please contact:

NSWCDD Public Affairs

(540) 653-8153

www.nswc.navy.mil

We are looking for scientists and engineers in different fields.

For employment opportunities, please send your resume to:

NSWCDD College Recruiting Program

Human Resources Department, Code PD

17320 Dahlgren Road

Dahlgren, VA 22448-5100

Telephone: 1-800-352-7967

E-mail: recruit@nswc.navy.mil

WWW: nswc.navy.mil/P/RECRUIT/recruit.html

For technical information, please contact:

Electromagnetic Effects Division (Code J50)

J50@nswc.navy.mil